

COMPLETE LISTING OF ALL OF THE CLAIMS

This listing of claims indicate all of the pending claims in the application, in response to the Notice of Non-Complaint Amendment mailed May 27, 2004.

Listing of Claims:

Claim 1 (original): A method to assemble a pre-curved bolster plate to one side of a substrate having a first side and a second side, comprising:

attaching a component to an electrical contact area on said first side of said substrate; and

attaching said pre-curved bolster plate on said second side of said substrate, wherein said pre-curved bolster plate is attached to said second side opposite said electrical contact area on said first side of said substrate.

Claim 2 (original): The method of claim 1, wherein said component is a land grid array (LGA) component.

Claim 3 (original): The method of claim 1, wherein said substrate is selected from a group of substrates consisting of: a printed circuit board (PCB), a multi-chip module (MCM), and a flexible substrate.

Claim 4 (original): The method of claim 1, wherein said pre-curved bolster plate includes a material selected from the group consisting of: a stainless steel alloy, a powder-coated spring steel alloy, a plated spring steel alloy, a

painted spring steel alloy, a titanium steel alloy, a carbon steel alloy, a magnesium alloy, and an aluminum alloy.

Claim 5 (original): The method of claim 1, wherein said pre-curved bolster plate has a spherical curvature.

Claim 6 (original): The method of claim 1, wherein said pre-curved bolster plate has a cylindrical curvature.

Claim 7 (original): The method of claim 1, wherein said pre-curved bolster plate has a radius of curvature in excess of 100 inches (254 centimeters).

Claims 8-12 (previously cancelled)

Claim 13 (original): An assembled substrate, comprising:  
a substrate having a first and a second side, and an electrical contact area on said first side;  
an electrical component having a plurality of leads attached to said electrical contact area of said substrate; and  
a pre-curved bolster plate attached to said second side of said substrate opposite of said electrical contact area of said substrate.

Claim 14 (Original): The assembled substrate of claim 13, wherein said substrate is selected from the group of substrates consisting of: a printed circuit board (PCB), a multi-chip module (MCM), and a flexible substrate.

Claim 15 (original): The assembled substrate of claim 13, wherein said component is land a grid array (LGA) component.

Claim 16 (original): The assembled substrate of claim 13, wherein said pre-curved bolster plate is fabricated from a material selected from the group of materials consisting of: a stainless steel alloy, a powder-coated spring steel alloy, a plated spring steel alloy, a painted spring steel alloy, a titanium steel alloy, a magnesium alloy, and an aluminum alloy.

Claim 17 (original): The assembled substrate of claim 13, wherein said pre-curved bolster plate has a spherical curvature.

Claim 18 (original): The assembled substrate of claim 13, wherein said pre-curved bolster plate has a cylindrical curvature.

Claim 19 (original): The assembled substrate of claim 13, wherein said pre-curved bolster plate has a radius of curvature in excess of 100 inches (254 centimeters).

Claim 20 (original): The assembled substrate of claim 13, wherein said pre-curved bolster plate has a radius of curvature less than 100 inches (254 centimeters).

21. (new) A method for providing support to a substrate, the method comprising:

attaching a component to an electrical contact area on a first side of the substrate; and

attaching a pre-curved bolster plate on a second side of the substrate, the pre-curved bolster plate having a pre-calculated radius of curvature prior to attachment to the second side of the substrate.

22. (new) The method of claim 21, wherein the component comprises a land grid array (LGA) component.

23. (new) The method of claim 21, wherein the substrate is selected from a group of substrates consisting of: a printed circuit board (PCB), a multi-chip module (MCM), and a flexible substrate.

24. (new) The method of claim 21, wherein the pre-curved bolster plate includes a material selected from a group consisting of: a stainless steel alloy, a powder-coated spring steel alloy, a plated spring steel alloy, a painted spring steel alloy, a titanium steel alloy, a carbon steel alloy, a magnesium alloy, and an aluminum alloy.

25. (new) The method of claim 21, wherein the pre-curved bolster plate has a spherical curvature.

26. (new) The method of claim 21, wherein the pre-curved bolster plate has a cylindrical curvature.

27. (new) The method of claim 21, wherein the pre-curved bolster plate has a radius of curvature in excess of approximately 100 inches (254 centimeters).

28. (new) A substrate support assembly produced in accordance with the method of claim 21.

29. (new) An apparatus for providing support to a substrate, the apparatus comprising:

means for attaching a component to an electrical contact area on a first side of the substrate; and

means for attaching a pre-curved bolster plate on a second side of the substrate, the pre-curved bolster plate having a pre-calculated radius of curvature prior to attachment to the second side of the substrate.

30. (new) An apparatus for providing support to a substrate, the apparatus comprising:

a component coupled to an electrical contact area on a first side of the substrate; and

a pre-curved bolster plate coupled on a second side of the substrate, the pre-curved bolster plate having a pre-calculated radius of curvature prior to attachment to the second side of the substrate.

31. (new) The apparatus of claim 30, wherein the component comprises a land grid array (LGA) component.

32. (new) The apparatus of claim 30, wherein the substrate is selected from a group of substrates consisting of: a printed circuit board (PCB), a multi-chip module (MCM), and a flexible substrate.

33. (new) The apparatus of claim 30, wherein the pre-curved bolster plate includes a material selected from a group consisting of: a stainless steel alloy, a powder-coated spring steel alloy, a plated spring steel alloy, a painted

spring steel alloy, a titanium steel alloy, a carbon steel alloy, a magnesium alloy, and an aluminum alloy.

34. (new) The apparatus of claim 30, wherein the pre-curved bolster plate has a spherical curvature.

35. (new) The apparatus of claim 30, wherein the pre-curved bolster plate has a cylindrical curvature.

36. (new) The apparatus of claim 30, wherein the pre-curved bolster plate has a radius of curvature in excess of approximately 100 inches (254 centimeters).

37. (new) A method for coupling a plate member to an electrical packaging assembly, the method comprising:

    providing an electrical packaging assembly;  
    disposing a plate member against the electrical packaging assembly;

    flexing the plate member towards the electrical packaging assembly to produce a flexed plate member; and  
    coupling the flexed plate member to the electrical packaging assembly.

38. (new) The method of Claim 37 wherein said flexing comprises flexing opposed ends of the plate member towards a substrate of the electrical packaging assembly.

39. (new) The method of Claim 37 wherein said flexing comprises flexing opposed ends of the plate member towards a substrate of the electrical packaging assembly until the plate member is generally flushed against the substrate.

40. (new) The method of Claim 37 wherein said electrical packaging assembly comprises an electrical component having a plurality of leads attached to an electrical contact area of a substrate.

41. (new) The method of Claim 39 wherein said electrical packaging assembly comprises an electrical component having a plurality of leads attached to an electrical contact area of said substrate.

42. (new) The method of Claim 37 wherein said plate member is stamped to achieve a spherical curvature.

43. (new) The method of Claim 41 wherein said plate member is stamped to achieve a spherical curvature.

44. (new) The method of Claim 37, wherein said plate member is fabricated from a material selected from the group of materials consisting of: a stainless steel alloy, a powder-coated spring steel alloy, a plated spring steel alloy, a painted spring steel alloy, a titanium steel alloy, a carbon steel alloy, a magnesium alloy, and an aluminum alloy.

45. (new) The method of Claim 43, wherein said plate member is fabricated from a material selected from the group of materials consisting of: a stainless steel alloy, a powder-coated spring steel alloy, a plated spring steel alloy, a painted spring steel alloy, a titanium steel alloy, a carbon steel alloy, a magnesium alloy, and an aluminum alloy.

46. (new) A method for assembling a bolster plate to a circuit member, the method comprising:

providing a circuit member;  
disposing a bolster plate against the circuit member;  
flexing the bolster plate towards the circuit member  
to produce a flexed bolster plate; and  
coupling the flexed bolster plate to the circuit  
member.

47. (new) The method of Claim 46 wherein said flexing comprises flexing opposed ends of the bolster plate towards the circuit member.

48. (new) The method of Claim 46 wherein said flexing comprises flexing opposed ends of the bolster plate towards the circuit member until the bolster plate is generally flushed against the circuit member.

49. (new) The method of Claim 46 wherein said circuit member includes an electrical contact area having a plurality of leads attached thereto.

50. (new) The method of Claim 48 wherein said circuit member includes an electrical contact area having a plurality of leads attached thereto.

51. (new) The method of Claim 46 wherein said bolster plate is stamped to achieve a spherical curvature.

52. (new) The method of Claim 50 wherein said bolster plate is stamped to achieve a spherical curvature.

53. (new) The method of Claim 46, wherein said bolster plate is fabricated from a material selected from the group of materials consisting of: a stainless steel alloy, a powder-coated spring steel alloy, a plated spring steel alloy, a painted spring steel alloy, a titanium steel alloy, a carbon steel alloy, a magnesium alloy, and an aluminum alloy.

54. (new) The method of Claim 52, wherein said bolster plate is fabricated from a material selected from the group of materials consisting of: a stainless steel alloy, a powder-coated spring steel alloy, a plated spring steel alloy, a painted spring steel alloy, a titanium steel alloy, a carbon steel alloy, a magnesium alloy, and an aluminum alloy.

55. (new) An assembly produced in accordance with the method of claim 46.